

WHAT IS CLAIMED IS:

1. A method of manufacturing a rotor for a high vacuum turbomolecular pump, comprising the steps of:

providing a workpiece being made of a material suitable for producing of said rotor;

5 forging said workpiece to obtain a generally cylindrical body(1,11) having a homogeneous mechanical properties, and

obtaining one or more sets of radial peripheral vanes thereon.

2. The method of claim 1, wherein said generally cylindrical body is a cylindrical billet (1) that is obtained by forging through an axial compression (P_1) thereof while preventing at the same time its radial expansion.

3. The method of claim 1, wherein said rotor is a bell-shaped rotor.

4. The method of claim 3, further comprising the steps of:

forging said generally cylindrical body being a cylindrical billet (1) through an axial compression (P_1), and

subsequently forming a cavity within said cylindrical billet by means of a punch (12) that is forced into the billet, while preventing at the same time radial expansions of the billet through confinement in a mold.

5. The method of claim 4, wherein the steps of forming a cavity comprising extending said cavity (13) over a part of said cylindrical billet and refining by subsequent mechanical working.

6. The method of claim 5, further comprising the steps of forming of a central bore on a bottom of said cavity and subsequently providing a thermal treatment for improving mechanical properties of said bell-shaped rotor.

7. The method as claimed in any preceding claim, further comprising a step of processing said at least one set of radial peripheral vanes by one or more techniques selected from the group consisting of milling, turning and electric discharge machining.

8. A rotor for a turbomolecular pump produced by the method of claim 1.

9. The rotor for a turbomolecular pump of claim 8, having parameters R , A and $R_{0.2}$ that are constant in all directions throughout of said rotor.